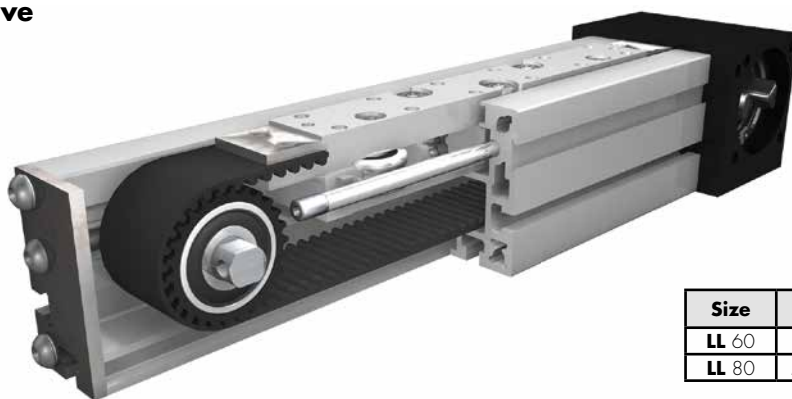
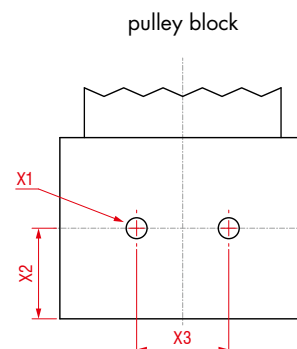


# Positioning system LLZ 60, 80

## Belt drive



Size	X1	X2	X3
LL 60	M8	29,5	30
LL 80	M10	47,5	40



### Function:

The guide body consists of an aluminium square profile, with an integrated roller guide. The carriage is moved by means of an internal rotating toothed belt. On one end there is a pulley block with coupling claws on both sides (standard version). On the opposite end there is a plate with a retensioning device for the toothed belt.

### Fitting position:

As required. Max. length 6.000 mm without joints.

### Carriage mounting:

By tapped holes.

### Unit mounting:

By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.

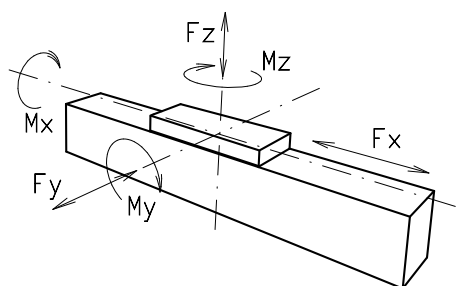
### Belt performance:

HTD with steel reinforcement, no backlash when changing direction, repeatability  $\pm 0,1$  mm.

### Carriage support:

The carriage runs on 5 rollers which can be adjusted and serviced at each central servicing position. Two grease nipples at the carriage enable relubrication of the positioning system.

### Forces and torques



Size	60		80	
	static	dynamic	static	dynamic
<b>Forces/Torques</b>				
$F_x$ (N)	1073	960	1900	1800
$F_y$ (N)	780	650	1900	1500
$F_z$ (N)	1170	845	2100	1700
$M_x$ (Nm)	20	13	85	60
$M_y$ (Nm)	78	65	140	110
$M_z$ (Nm)	52	39	110	90
<b>All forces and torques related to the following:</b>				
existing values $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$				
table values				
<b>No-load torque</b>				
Nm	0,6		0,8	
<b>Speed</b>				
(m/s) max	6		10	
<b>Tensile force</b>				
permanent (N)	1050		1900	
0,2 s (N)	1150		2090	
<b>Geometrical moments of inertia of aluminium profile</b>				
$I_x$ mm <sup>4</sup>	4,47x10 <sup>5</sup>		15,83x10 <sup>5</sup>	
$I_y$ mm <sup>4</sup>	5,59x10 <sup>5</sup>		20,68x10 <sup>5</sup>	
Elastic modulus N/mm <sup>2</sup>	70000		70000	

For life-time calculation of rollers use our homepage · [www.bahr-modultechnik.com](http://www.bahr-modultechnik.com)

Driving torque:

$$M_o = \frac{F \cdot P \cdot S_i}{2000 \cdot \pi} + M_n$$

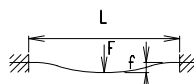
$$P_o = \frac{M_o \cdot n}{9550}$$

F = force (N)  
 P = pulley action perimeter (mm)  
 Si = safety factor 1,2 ... 2  
 Mn = no-load torque (Nm)  
 n = rpm pulley (min<sup>-1</sup>)  
 Mo = driving torque (Nm)  
 Po = motor power (KW)

Deflection:

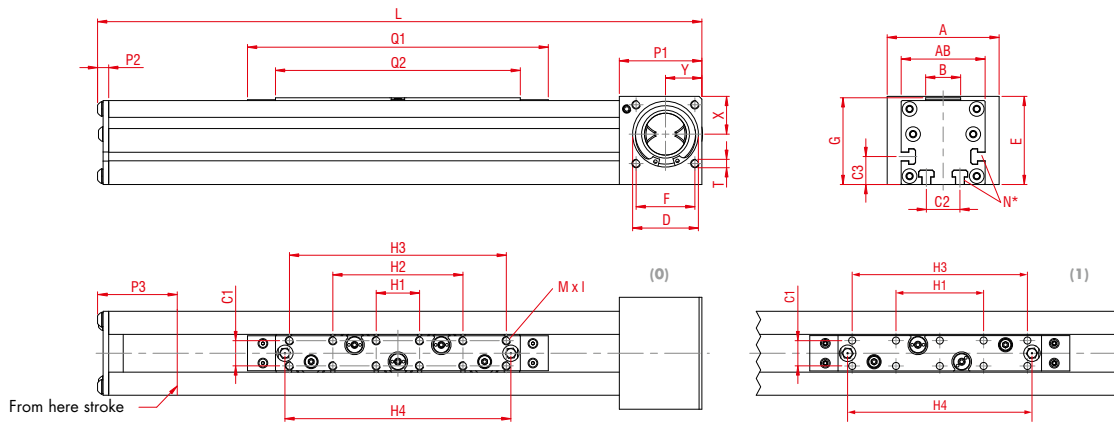
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

f = deflection (mm)  
 F = load (N)  
 L = free length (mm)  
 E = elastic modulus 70000 (N/mm<sup>2</sup>)  
 I = second moment of area (mm<sup>4</sup>)

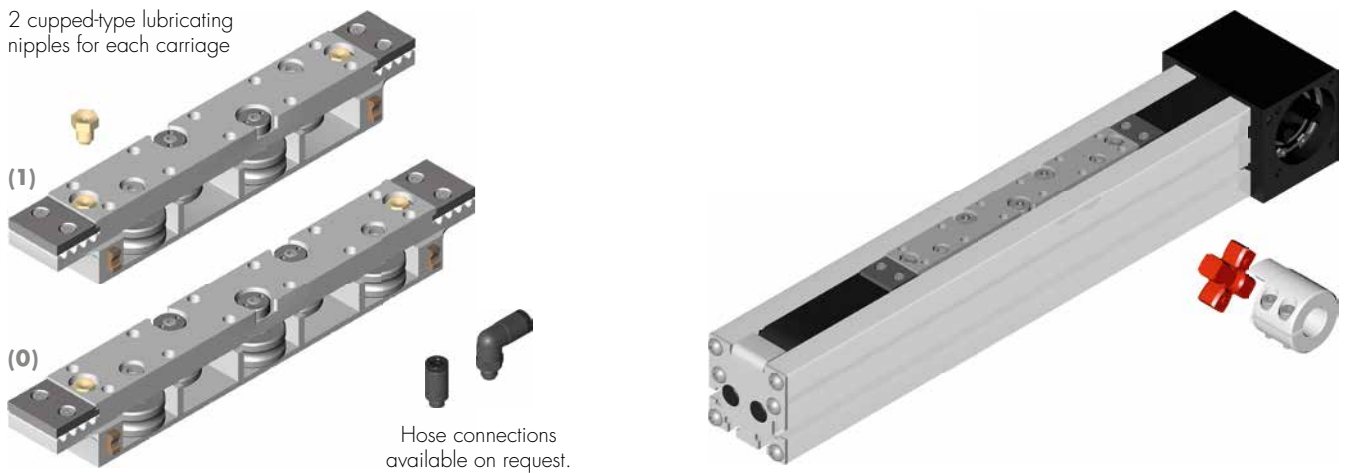


# Positioning system LLZ 60, 80

Dimensions (mm)



2 cupped-type lubricating nipples for each carriage



Hose connections available on request.

\*For slide nuts refer to chapter 2.2 page 2

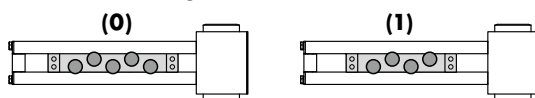
Size □	Basic length L	A	AB □	B	C1	C2	C3	D -0,05	E	F	G	M	N for	P1	P2	P3	T	X	Y	Basic weight	Weight per 100 mm
LLZ 60	330	80	60	25	18	24	20	47	63	42	62,5	M6x6	M5	59	6	55	M6	27	26	2,75 kg	0,41 kg
LLZ 80	495	100	80	25	18	30	22	68	93	60	83	M6x10	M6	90	9	84	M8	45	40	8,45 kg	0,90 kg

11.1

**0** Choice of guide body profile:

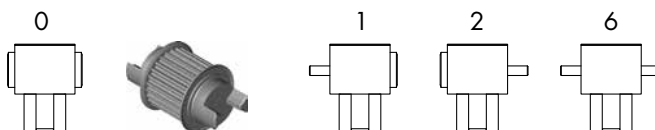
- (0) Standard (2) corrosion-protected guide rods and screws
- (4) expanded corrosion-protected version (depending on the availability of components)

**0** Choice of carriages:



Carriage	L	Q1	Q2	H1	H2	H3	H4
LLZ 60 Vers. (0)	330	215	175	31	93	155	161,5
LLZ 60 Vers. (1)	299	184	144	62	---	124	130,5
LLZ 80 Vers. (0)	495	320	251	30	90	150	228
LLZ 80 Vers. (1)	435	260	191	40	---	120	168

**0** Drive version:



**Belt table:**

Code No.	Size	Belt	mm/rev.	Number of teeth
0 3	60	5M30	130	26
0 7	80	8M 30	176	22

**Shaft dimensions / Coupling claw:**

Size	Shaft	Feather key	Coupling
60	14 h6 x 35	5x5x28	14
80	18 h6 x 45	6x6x40	19

LLZ 60 1 0 0 0 0 3 1 01500 — Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:

LLZ60, standard body profile, double-sided coupling claw, 1170 mm stroke

